

specialization of that order. The posterior feet were more truly plantigrade. for the extremity of the calcaneum reached the ground, while the instep was elevated above it, being supported, no doubt, by a more or less elastic pad. This arched or angulate plantigrade type of foot, has a remote parallel in that of man. It is quite unique among ungulate *Mammalia*.

What difficulties the other parts of the skeleton may present, I do not yet know, but I perceive nothing in the dentition which forbids the reference of *Toxodon* to the *Proboscidea*. The dentition is scarcely more different from that of *Mastodon* or *Dinotherium*, than that of *Bos* is from *Dicotyles* or *Hippopotamus*. The former genera may be the extremities of a series whose intermediate members are as yet undiscovered. In the latter case, the intermediate forms are mostly known.

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*Stated Meeting, May 6, 1881.*

Present, 22 members.

President, Mr. FRALEY, in the Chair.

Capt. McCauley and Mr. Ellis Yarnall, two newly-elected members were introduced to the presiding officer and took their seats.

Visitor, Lieut.-Commander Gorringe, U. S. N.

Letters acknowledging receipt of diplomas were received from Messrs. W. B. Taylor, C. P. Patterson, Asaph Hall, J. J. Stevenson, C. F. Adams, J. F. Mansfield, A. S. McCreath, J. Douglas, Jr., L. M. Haupt, R. H. Alison, O. W. Holmes, Alvan Clark and J. J. Sylvester.

Letters accepting membership were received from Mr. Alvan Clark, dated Cambridgeport, Mass., April 25th; Prof. J. J. Sylvester, dated Baltimore, April 25th; Judge Wm. Butler, dated Philadelphia, May 6th; Prof. E. A. Barber, 4101 Walnut street, Philadelphia, April 25th, and Mr. W. W. Griscom, 2009 Pine street, Philadelphia, April 18, 1881.

Letters of acknowledgment for publication, and letters of envoy were read from the Musée Guimet, Herr Sommerbrodt, of Breslau, April 11th, 1881; the Physico-Central Observatory, St. Petersburg, the Smithsonian Institution, April

15th, and the Bureau of Ethnology, J. W. Powell, Director, April 25th.

Donations for the Library were received from St. Petersburg Botanical Garden; Swedish Bureau of Statistics; Dr. Julius Sommerbrodt, of Breslau; R. Belgian Academy; Geographical Society, of Bordeaux; Revista Euskara, of Pamplona; R. Academies at Turin and Rome; R. Astronomical Society; Society of Antiquaries; Dr. C. W. Siemens; Augustus Mongredien; London Nature; Hon. R. C. Winthrop; Boston Academy; American Journal of Science; American Philosophical Association; Essex Institute; American Antiquarian Society; Harvard University Bulletin; Samuel H. Scudder; Astor Library; Microscopical Journal; James J. Talbot; Geol. Survey of New Jersey; Penna. Magazine, Engineer's Club, Franklin Institute, Pharmaceutical Association, Prof. E. A. Barber, Numismatic Society, Penna. Hospital for the Insane, Penna. Museum and School of Industrial Art, Am. Journal of Pharmacy, Medical News, Prof. L. M. Haupt, Mr. Henry Phillips, Jr.; Maryland Historical Society; Smithsonian Institution, Anthropological Society; War Department; Hon. W. D. Kelly; Mr. Jed. Hotchkiss; Mr. Chas. C. Jones, of Savannah; Wisconsin Nat. History Society; Ministerio de Fomento.

The death of Prof. A. Delesse, at Paris, March 24th, aged 63, was reported.

Mr. Frazer exhibited coins; and also specimens of the granite, cement, lead, bronze and steel used by Egyptians in erecting the obelisk now in New York, and sections of the granite under the microscope.

On motion of Mr. E. K. Price, the thanks of the Society were voted to Lieut.-Commander Gorringe for the great gratification he had afforded the members, by the exhibition of many rare and valuable ancient coins of Egypt, Macedonia, Greece and Rome; and to Mr. D. S. Holman for his assistance in rendering them visible to all by his megascope.

Mr. Ashburner exhibited a suite of maps of one of the British coal fields.

Dr. Chance communicated a paper entitled "An analysis of the Fire-damp Explosions in the Anthracite coal mines, from 1870 to 1880."

Mr. Fraley reported that he had received the last installment of the Michaux legacy, amounting to \$131.18, and, paid it over to the Treasurer.

And the meeting was adjourned.

*An Analysis of the Fire-damp Explosions in the Anthracite Coal Mines, from 1870 to 1880. By H. M. Chance, M. D.*

(Read before the American Philosophical Society, May 6, 1881.)

The table which forms the subject matter of this paper is compiled from the reports of the Inspectors of Mines, for the years from 1870 to 1879 inclusive. In it are included all recorded explosions, whether resulting in serious or trivial casualties. The majority of these were caused by the ignition of but a few cubic feet of explosive mixture, but some were terrible disasters, the victims of which may be numbered by scores.

The total number of recorded explosions is 639, the number of casualties 1127, and of these 225 resulted fatally. As the reports for two or three years are not complete, these figures do not represent the exact number of casualties; but they express sufficiently well the ratio between the explosions and the number of miners injured by them.

During these years the explosion of fire-damp was the cause of sixteen per cent. of the total casualties reported by the Inspectors, of eleven per cent. of the fatal accidents and of eighteen per cent. of the non-fatal casualties.

#### EXPLOSIONS OF FIRE-DAMP.

	1870.	*1871.	1872.	1873.	1874.	†1875.	‡1876.	1877.	1878.	1879.	Total.
January . . . .	0	8	3	2	2	3	5	7	2	4	36
February . . . .	2	4	4	2	5	3	6	4	1	5	36
March . . . . .	0	2	6	3	3	3	4	5	0	8	34
April . . . . .	4	7	14	6	5	2	7	8	2	10	65
May . . . . .	3	10	8	9	8	1	11	9	2	18	79
June . . . . .	1	6	7	13	12	5	4	6	4	3	61
July . . . . .	3	11	5	4	7	7	2	7	4	6	56
August . . . . .	3	10	13	10	5	3	2	3	6	9	64
September . . . .	4	9	6	10	9	12	4	2	0	10	66
October . . . . .	8	7	10	6	8	6	8	7	2	10	72
November . . . .	6	3	2	7	9	5	4	7	2	7	52
December . . . .	6	6	3	2	4	9	8	6	4	10	58
Total . . . .	40	83	81	74	77	59	65	71	29	100	679

\* Explosions in Eastern District of Luzerne, not included in the report for 1871.

† Explosions in Southern District of Carbon and Luzerne, not included in column for 1875.

‡ Shamokin District statistics omitted from report for 1876.